What is claimed is:

1. A color sensor for generating color information defining colors of an input image, the color sensor comprising:

an input section including an array of transducer pairs, each transducer pair defining one of a plurality of pixels of said image, each transducer pair comprising at least two transducers each generating an output having a peak at a selected color, the selected color differing as between the two transducers, and each transducer having an output profile comprising a selected function of color;

a color processing section including a plurality of color pixel processors each receiving the outputs from the two transducers comprising the transducer pair associated with a pixel, and for generating in response a color feature vector representative of the brightness of the light incident on the pixel and a color value corresponding to the ratio of outputs from the transducers comprising the transducer pair associated with the pixel; and

a color boundary processing section for generating a plurality of color boundary feature vectors, each associated with a pixel, each representing the difference between the color value generated by the pixel color processor for the respective pixel and color values generated by the pixel color processor for pixels neighboring the respective pixel.

2. A color sensor as defined in claim 1 in which said input section includes:

a retina comprising said transducer pair array;

a lens for focusing an image of an object onto said retina; and

an adjustable iris situated between said lens and said retina for adjusting the intensity of light comprising said image on said retina.

3. A color sensor as defined in claim 2 in which said iris is adjustable in response to an adjustment signal representative of the intensity of light incident over the entire retina.

4. A color sensor as defined in claim 3 in which said color processor generates said adjustment signal in response to the sum of the amplitudes of all of the outputs generated by all of said transducers comprising the retina.

5. A color sensor as defined in claim 1, wherein the color processing section further comprises:

a plurality of pairs of controlled gain amplifier circuits, each pair associated with one of the color pixel processors, each one of the pair for receiving an output from one of the transducers comprising the transducer pair associated with the one color pixel processor, each controlled gain amplifier circuit generating a controlled gain output in response to the output from the transducer and a respective controlled gain signal; and

a common control generating said controlled gain signals from said controlled gain outputs in a feedback loop manner, for controlling said controlled gain amplifier circuits of all of said color pixel processors in tandem.

6. A color sensor as defined in claim 5, further comprising, for each color pixel processor, a ratio generating circuit for generating a color vector output representative of a difference between amplitudes of the outputs of said controlled gain amplifier circuits, said color vector corresponding to said ratio of outputs.

7. A color sensor as defined in claim 5, further comprising, for each color pixel processor, a brightness value generating circuit for generating a brightness value corresponding to the sum of the controlled gain outputs generated by the respective controlled gain amplifier circuits.

8. A color sensor as defined in claim 7, wherein each color pixel processor further comprises:

a neural director for receiving the color value and brightness value and generating in response an output vector having an increased dimensionality which will aid in distinguishing between similar patterns in the input image; and

a multi-king-of-the-mountain circuit receiving the output vector of the neural director and generating a number of MKOM output vectors, each of which is associated

with one dimension of the vector input thereto by the neural director, each component of the MKOM output vector having a value in a range of possible values from zero up to a maximum value related to the maximum positive element value of the input vector, the outputs associated with an input vector component having successively lower values being successively lower in value, forming a ranking of the vector components.

9. A color sensor as defined in claim 5, wherein the common control generates said controlled gain signals as a function of a peak output generated by respective ones of the controlled gain amplifier circuits of all of the color pixel processors.

10. A color sensor as defined in claim 9, wherein the common control generates said controlled gain signals as a function of a sum of the peak outputs.

11. A color comparator for comparing color information between a first input image and a second input image, the color comparator comprising:

an input section for each image, each input section including an array of transducer pairs, each transducer pair defining one of a plurality of pixels of said

image, each transducer pair comprising at least two transducers each generating an output having a peak at a selected color, the selected color differing as between the two transducers, and each transducer having an output profile comprising a selected function of color;

a color processing section for each image, each color processing section including a plurality of color pixel processors each receiving the outputs from the two transducers comprising the transducer pair associated with a pixel, and for generating in response a color feature vector representative of the brightness of the light incident on the pixel and a color value corresponding to the ratio of outputs from the transducers comprising the transducer pair associated with the pixel; and

a comparator section receiving the color feature vector and the color value from the color processing section for each image and generating a comparison feature fusion vector representative of color information differences in the first and second images.

12. A color comparator as defined in claim 11, wherein the comparator section further comprises:

a brightness difference circuit receiving the color feature vector for each of the images and generating a brightness difference vector;

a color value difference circuit receiving the color value for each of the images and generating a color value difference vector; and

a comparator feature fusion network array receiving the brightness difference vector and the color value difference vector and generating the comparison feature fusion vector.